

Abstract

Efficient usage of available spectrum is increased by logically dividing government licensed frequency channels into sub-channels, each of which can individually transmit a signal between a base unit and terminal. The sub-channels are each offset from the center of the frequency channel by a unique offset amount to avoid interference. Power control, sub-channel interference cancellation, and frequency control are employed to minimize the effects of out-of-band sub-channel signals on adjacent sub-channels. Any given sub-channel can be dynamically configured to transmit voice or data signals. Further spectral efficiency is realized using time division multiplexing on some or all of the sub-channels.